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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,309

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Hisashi Ohtsuki

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

JOYCE, WILLIAM C

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,309	Applicant(s) OHTSUKI, HISASHI	
	Examiner William C. Joyce	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed January 27, 2010 for the above identified patent application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,296,321 (USP '321) in view of US Patent 5,975,767 (USP '767).

Referring to Figure 24, USP '321 discloses a vehicle wheel bearing apparatus structured as a unit of a wheel hub and a double row rolling bearing comprising: an inner member (6a) including a wheel hub integrally formed with a wheel mounting flange (7) on one end, an inner circumferential surface of the wheel hub is formed with a serration (28), an axially extending cylindrical portion with a pair of inner raceway surfaces extend from the flange; one or more inner rings (50) being press-fit onto the cylindrical portion of the wheel hub, the one or more inner rings are formed with at least one of the inner raceway surfaces on its outer circumferential surface; an outer member (1) is arranged around the inner member, the outer member is formed with double row outer raceway surfaces on its inner circumferential surface opposite to the inner raceway surfaces; double

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row rolling elements (12) are arranged between the inner and outer raceway surfaces of the inner member and the outer member; seals (19) seal an annular space between the inner member and the outer member; and a partition wall in the form of a cap (34) is disposed on the wheel hub at its outboard side to close a central bore of the wheel hub.

With respect to the newly added limitation defining the hub as "semi-floating," USP '321 teaches a resilient spring retaining member (109) for connecting a shaft (30) to the hub, wherein the resilient spring retaining member allows for axial displacement between the shaft (30) and the hub. Since the hub is axially displaceable with respect to the shaft (30), the hub arrangement is considered "semi-floating" with respect to the shaft (30). Note, USP '321 teaches alternative embodiments having a semi-floating hub arrangement.

Alternatively, the terminology "semi-floating" found in the preamble has been given limited patentable weight because the body of the claim fails to clearly and positively define hub structure so as to be capable of "semi-floating."

USP '321 does not disclose the partition was being integrally formed with the hub. The prior art to USP '767 teaches at least two embodiments of a wheel hub, wherein the different embodiments teach different partition wall arrangements. For example, Figure 7 shows a hub having a partition wall formed

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as a cap member (64) and Figure 1 shows a hub having an integral partition wall (65), Figure 2 illustrates the partition wall being located on an axis of the wheel hub in a direction toward an inner side end of the mounting flange. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the cap member of USP '321 with a partition wall being formed integrally with the hub, as taught by USP '767, motivation being to prevent the cap from accidentally becoming detached from the hub during operation.

USP '321 does not disclose the bearings having a cage member. However, it was notoriously known in the art to provide a bearing member with a cage. For example, the prior art in Figures 38-39 of USP '321 illustrate a cage member for supporting the balls. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the hub of USP'321 with a cage, as was well known in the art, motivation being to hold the ball bearings with a predetermined spacing.

With respect to claim 11, USP '321 teaches the outer member (1) configured to be attached to a vehicle knuckle. For example, Figure 39 of USP '321 illustrates an outer member (1b) of a vehicle hub being connected to a knuckle (or housing 40). The knuckle formed as an axle housing supported under a body of a vehicle; a drive shaft (30) inserted into the axle housing; and the drive shaft is connected to an inner member. It would have been obvious to one of ordinary

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skill in the art at the time the invention was made to provide the hub arrangement illustrated in Figure 24 of USP '321 with a knuckle (or axle housing) for supporting the hub to a vehicle body, as disclosed in Figure 39 of USP '321, motivation being to support the hub for rotation with respect to a vehicle body.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,296,321 (USP '321) and US Patent 5,975,767 (USP '767) as applied to claim 9 above, and further in view of US Patent 7,255,482 (USP '482).

The prior art to USP '321 does not disclose the hub assembly having the claimed hardened surfaces. However, the prior art to USP '482 discloses an outer circumferential region of the wheel mounting flange from an inboard base side to the axially extending cylindrical portion is hardened by high frequency induction hardening to have a surface hardness of about 54-64 HRC, and the caulked portion remains unhardened to have a surface hardness of 25 HRC or less after forging. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bearing device of USP '321 with the claimed surfaces, as taught by USP'482, motivation being to provide hardened wear resistant hub surfaces while prevent cracking of the caulked portion during manufacture.

Response to Arguments

Applicant's arguments filed January 27, 2010 have been fully considered but they are not persuasive.

In at least Figure 24, USP '321 teaches a resilient spring retaining member (109) for connecting a shaft (30) to the hub, wherein the resilient spring retaining member allows for axial displacement between the shaft (30) and the hub. Since the hub is axially displaceable with respect to the shaft (30), the hub arrangement is considered "semi-floating" with respect to the shaft (30).

Alternatively, the terminology "semi-floating" found in the preamble has been given limited patentable weight because the body of the claim fails to clearly and positively define hub structure so as to be capable of "semi-floating."

Applicant's arguments are not persuasive and Claims 1-13 stand rejected as described above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/
Primary Examiner, Art Unit 3656